

Geochronological and isotope geological study of the Kise granodiorite in the Ina district of the Ryoke belt, Southwest Japan Arc.

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The Kise granodiorite is exposed only in the area around the Tenryu River, because this body is covered by the Tenryu gravel. This is medium grained massive hornblende - biotite granodiorite, and intruded by medium grained massive biotite granite. Dark inclusions are often included in this granodiorite. The Kise granodiorite is mainly composed of plagioclase, quartz, K-feldspar, biotite and hornblende with accessory allanite, apatite, zircon and opaque minerals. The biotite granite, intruded into the Kise granodiorite, is mainly composed of quartz, plagioclase, K-feldspar and biotite with accessory apatite, zircon and opaque minerals. The dark inclusion, has modal composition of quartz diorite, is fine grained, and mainly composed of plagioclase, hornblende, biotite and quartz with accessory K-feldspar, apatite, zircon and opaque minerals. There are phenocrystic plagioclase and quartz, which might be derived from the Kise granodiorite. SiO₂ contents of the Kise granodiorite range from 68.6 to 71.0 wt%, and variations of another elements are narrow. SiO₂ content of the dark inclusion is 53.7 wt%. This is enriched in TiO₂, Al₂O₃, FeO*, MgO, CaO, Cr, Nb, V, Y, Zr than the Kise granodiorite. Biotite, felsic fraction and whole-rock samples from this body give Rb-Sr isochron ages of 58.4±0.1, 59.8±0.2, 59.0±0.4 and 61.3±0.5Ma. The former two samples give K-Ar hornblende ages of 67.0±0.8 and 67.9±0.7Ma, respectively (Yuhara et al., 2000). These ages may indicate timing that this body cooled down to about 300 and 500 degrees, respectively. The initial Sr (0.70838) and initial Nd (0.512249) data of the Kise granodiorite are in the range of the Ryoke granite shown by Yuhara et al. (2000).